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XIV.

CONTRIBUTIONS TO AMERICAN BOTANY.*

By Asa Gray.

Presented by Sereno Watson, March 14, 1888.

Notes upon some Polypetalous Genera and Orders.

Rutaceæ.

Although nature, by supplying various connecting links, manifestly invites the union of the *Simarubaceæ* and *Rutaceæ* in one order, yet the exclusion of the former enables the botanist to define the latter order by its pellucid-punctate or otherwise glandular-dotted foliage and the accompanying aromatic or pungent or acrid qualities. But it is difficult to draw the line.

PHELLODENDRON shows such dots or glands, few and sparse though they be; so it should rather be placed with the Xanthoxylaceous *Rutaceæ*. Otherwise we shall be forced to discard some of the species of the *Tobinia* section of *Xanthoxylum*.

CNEORIDIUM, Hook. f., must more confidently be restored to *Rutaceæ*. Hooker, in referring it to *Simarubaceæ*, on account of its resemblance to *Cneorum*, was not aware that this little shrub exhales the odor of Rue, and that the taste is not "acrid," but pungent; and it is not difficult to see that the leaves, although opaque, have truly and numerously the Rutaceous glands. Occasionally these are manifest in the petals, and they are apparent in the skin of the drupe. Hooker describes the seed as destitute of albumen, the cotyledons as thick and plano-convex. Torrey, correct as far as it goes, wrote: " Embryo curved in thin fleshy albumen." I find the embryo curved almost into a circle, and a very thin stratum of firm albumen, which might be mistaken for a thick tegmen lining the crustaceous testa. What has not been noticed is, that the oval and not very thick cotyledons are longitudinally convolute, in the manner of *Cadellia*, F. Müller, as figured by him in Fragm. Phyt. ii. t. 12. As Bentham, in Fl. Austral., describes a monocarpellary species of this genus, with basal style, and which has dotless leaves, it seems that this genus is even more than *Cneorum* allied to *Cneoridium*, and that the technical character of the order vanishes.

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* This short paper is a continuation of the one by Dr. Gray in the last volume of the Proceedings, entitled "Revision of some Polypetalous Genera and Orders precursory to the Flora of North America." It contains the notes which he had prepared to present to the Academy upon the *Rutaceæ* and *Vitaceæ*, the revision of which orders he had taken up immediately after his return from England in October last. He had scarcely commenced his study of the genus *Vitis* of the latter order when his work upon the Flora of North America ceased. [S. W.]

CHOISYA, HBK. The gynæcium is quite incorrectly figured and described by Kunth. It is in DC. Prodr. i. 724 that the correct character "*capsula 5-rostrata*" first appears; and the next year (1825) Adrien Jussieu, who well describes the pistil, appends to his account, " Fructus (teste Bonpland) *capsularis, 5-sulcus, 5-rostratus*." Finally, Baillon (Hist. Pl. iv. 471) adds, " Cocci 5, bivalves, endocarpio soluto"; so he must have found at Paris dehiscent fruit, from which the seeds had fallen, for these are still undescribed. I can now add a second species to this genus, and describe the seeds; viz. *C. dumosa*, *Astrophyllum dumosum*, Torr. Pacif. R. Rep. ii. 161, and Bot. Mex. Bound. 42, of which we now possess good flowers and fruit, which quite accord with *Choisya*. The seeds (solitary or rarely in pairs) are reniform, with nearly smooth subcrustaceous testa, and arcuate embryo in thin albumen. There is either a deciduous caruncle, or else a small and definite portion of the thin-cartilaginous endocarp falls away attached to the hilum.

PTELEA. *P. pentandra* of Benth. Pl. Hartw. is apparently *Rhus Toxicodendron*. *P. aptera*, Parry, of Lower California, is very remarkable for its nucumentaceous and turgid fruit surrounded by a very narrow wing or else quite wingless. As Planchon and Triana have stated, De Candolle was quite wrong in adducing *Amyris elemifera*, L., to *P. trifoliata*. Catesby's figure is evidently that of an *Amyris*, probably the small-leaved form of *A. maritima*, Jacq. (var. *angustifolia*), which is found on the coast of Florida, although the leaflets are represented as too broad and rounded at base. The habitat " Carolina" is a mistake, and it has no foundation in Catesby's account.

XANTHOXYLUM. Although most authors, including even the classical Endlicher, have adhered to the faulty orthography, *Zanthoxylum*, yet the correction was made even in Linnæus's day by Miller, and has been adopted by nearly a dozen of the prominent botanists (including Smith, Sprengel, and Lindley); so that, inasmuch as both forms must be given in indexes, it is better to be correct. As well as I can make out, the name *Zanthoxylum* began with Plukenet (Alm. 396), and in a confusion (his original being the Fustic-wood of Barbadoes) which has resulted in fixing the name of Yellow-wood upon a large genus of trees and shrubs that have no yellow wood or bark, or hardly any. Linnæus in Gen. Pl. refers the genus to Colden (who knew only the northern *X. Americanum*); but he had much earlier taken up the genus in Hort. Cliff., from Catesby, whose plant is the Carolinian *Clava Herculis*. In the first edition of the Spec. Plantarum there is no reference to Browne, Hist. Jam., so the West Indian species has no claim whatever to this specific name. Further information is needed of the Arkansas-Texan form, which has been regarded as a species by Nuttall, Wright, Buckley, Engelmann, &c., and (in Florida) by Shuttleworth, while I can see in it only a variable form, var. *fruticosum*. There is, perhaps, more doubt as to *X. Caribæum*, var. *Floridanum*, the *X. Floridanum*, Nutt. Sylv. iii. t. 85, which Watson in his Bibl. Index and Curtiss in his distributed sets refer without question to *X. Caribæum*, Lam., the full synonymy of which is brought together by Triana and Planchon. But the Florida trees, so far as we know, are unarmed; those of Lamarck's species are said to be prickly; the leaflets of the former are mostly fewer, and those near the inflorescence commonly obtuse; there is an early pubescence on the inflorescence and petioles of the former, and no rimose wartiness. But. specimens collected by Sargent have foliage on mature sterile shoots quite like specimens from Martinique, some of which show no prickles; Macfadyen's *X. elephantiasis* is said to be unarmed, and Grisebach does not assign prickles to his *X. aromaticum*.

AMYRIS, P. Browne. Hooker's suggestion that this genus should be transferred to the *Rutaceæ* was rightly acted upon by Triana and Planchon in Ann. Sci. Nat. ser. 5, xiv. 320, where some critical remarks are made upon the species. The wrong reference of *Amyris elemifera*, L., to *Ptelea trifoliata* by De Candolle is there corrected. Catesby's figure clearly represents a small-leaved form of the West Indian and Florida coast species. But, by some oversight, Triana and Planchon say that from the figure the species is distinguished from all others by its elongated leaflets, narrow at base, rhomboidal, and by its piperiform fruit. Now the leaflets in Catesby's plate are not at all narrowed at base nor rhomboidal, but ovate-lanceolate. Most specimens do accord with this description, more or less, but not the figure. Jacquin's specific names take priority, having been enumerated in 1760, and one of the names, *A. maritima*, is cited from Jacquin by Linnæus. To this species our *Amyris* is evidently to be referred, and this name should be preferred, among other reasons, because it was taken up by Linnæus; while the *A. sylvatica*, Jacq., if distinct, as Triana and Planchon make out, is the larger and thinner-leaved one named by De Candolle *A. Plumieri*. The syn. of Catesb. ii. t. 33, cited under *A. sylvatica* by Jacquin, belongs of course to *A. maritima*. Catesby gives no habitat, and his plant was probably from the Bahamas, certainly not from "Carolina." Why De Candolle described the lateral leaflets of *A. maritima* as sessile, and why Grisebach made the leaflets of his *A. sylvatica* glaucous beneath, one cannot find out. We name our forms

AMYRIS MARITIMA, Jacq. *A. sylvatica*, DC. Prodr., & Griseb. at least mainly. *A. Floridana*, Nutt., who perhaps mistakenly represents oval fruit in his Sylva. Leaflets mostly broadly ovate or roundish, obtuse or acute or acuminate, shining and bright green both sides, the veins and reticulated veinlets conspicuous.

Var. ANGUSTIFOLIA. Shrub, apparently more maritime; leaflets ovate-lanceolate or rhombic-lanceolate, smaller (an inch or more long), dull or pale in the dried specimens, and venation less conspicuous. — *A. elemifera*, L. (Catesb. Car. ii. t. 33). *A. sylvatica*, Jacq., as to syn. Catesb. only. *A. maritima*, Griseb., at least in part; Triana & Planch. Ann. Sci. Nat. l. c. 324, excl. syn. Near to this is the following: —

A. PARVIFOLIA; a low shrub, collected by Prof. Sargent on the southeastern border of Texas, on the Rio Grande below Brownsville, and probably the same collected by General Eaton and Dr. Edwards in Mexico, near Monterey: leaflets only half or three quarters of an inch long, rhombic-ovate or narrower, obtuse, nearly all crenate or crenulate, dull, and with comparatively inconspicuous reticulation; lateral ones short-petiolulate or subsessile, as is sometimes the terminal one also.

Vitaceæ.

AMPELOPSIS, Michx. p. p., Torr. & Gray. *Landukia* and *Parthenocissus,* Planchon, Ampelid. in Mon. Phan. Prodr. v. 446, 447. Those who can adopt all or most of the ten genera of Planchon's *Ampelideæ* may with him reserve the name of *Ampelopsis* for the first and third of Michaux's species; but if they follow the rule of priority, and think that names given by Rafinesque as late as the year 1830 must needs be adopted, they will take up his name of *Quinaria* instead of Planchon's new-coined name of *Parthenocissus,* the homonym of Loureiro being a synonym of an older genus. But I am quite unable to distinguish the *A. cordata* and the *A. bipinnata* of Michaux, taken along with the tetramerous *Cissus* (*Ampelopsis*, Planch.) *orientalis,* from the genus *Cissus.* The *Ampelopsis quinquefolia,* Michx., remains as the proper representative of the genus, and should preserve the name. This was the course taken, in 1838, in Torrey and Gray's Flora of North America, where the genus was first rightly established, and in the Genera Illustrata, where the peculiarities of the disk and of the tendrils were insisted on; and this generic name has adhered to the Virginia Creeper, and to the Japanese and Indian species which go with it. Moreover, Planchon's *Parthenocissus* appears to be just the same as his *Landukia;* for *A. Landuk,* as described by Miquel, and as well as I can make out on a scanty specimen, has just such a disk, or what answers to disk, as has *A. tricuspidata* Thus we have a genus well marked by habit, by its peculiar disciferous tendrils for climbing, and by the adnate thickening of base of ovary in place of the free or partly free torus-disk of the other *Ampelideæ.* It may still be questioned whether the mass of *Ampelideæ* can be definitely separated from *Vitis,* and into how many genera divided; but surely *Ampelopsis,* with the Virginia Creeper as the type, must be admitted as a good genus.